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# Service Manual

ORDER NO.
**CRT3559**

## BRIDGEABLE TWO-CHANNEL POWER AMPLIFIER

# GM-3200T/XU/UC
# GM-3200T/XU/EW
# GM-3200T/XU/ES
# GM-3200T/XU/CN

**This service manual should be used together with the following manual(s) listed below. For the parts numbers, adjustments, etc. which are not shown in this manual, refer to the following manual(s).**

| Model No. | Order No. | Mech. Module | Remarks |
|---|---|---|---|
| GM-320T/XU/UC | CRT3518 | | |

**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
**PIONEER ELECTRONICS (USA) INC.** P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
**PIONEER EUROPE NV** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2005**
K-ZZA. OCT. 2005 Printed in Japan

# SAFETY INFORMATION

**WARNING**

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

# EXPLODED VIEWS AND PARTS LIST

## PACKING(Page 6)

### PACKING SECTION PARTS LIST

*:Non spare part

| Mark | No. | Description | GM-320T/XU/UC | GM-3200T/XU/UC |
|---|---|---|---|---|
| | 7 | Carton | CHG5596 | CHG5595 |
| | 8 | Contain Box | CHL5596 | CHL5595 |
| | 9-2 | Owner's Manual | CRD4015 | CRD4016 |
| * | 9-4 | Caution Card | CRP1324 | Not used |

| Mark | No. | Description | GM-320T/XU/UC | GM-3200T/XU/EW |
|---|---|---|---|---|
| | 6 | Polyethylene Bag | CEG1181 | CEG1057(Cover) |
| | 7 | Carton | CHG5596 | CHG5597 |
| | 8 | Contain Box | CHL5596 | CHL5597 |
| | 9-2 | Owner's Manual | CRD4015 | CRD4014 |
| * | 9-3 | Card | ARY1048 | Not used |
| * | 9-4 | Caution Card | CRP1324 | Not used |
| * | 9-5 | Warranty Card | Not used | CRY1157 |

| Mark | No. | Description | GM-320T/XU/UC | GM-3200T/XU/ES |
|---|---|---|---|---|
| | 6 | Polyethylene Bag | CEG1181 | CEG1057(Cover) |
| | 7 | Carton | CHG5596 | CHG5598 |
| | 8 | Contain Box | CHL5596 | CHL5598 |
| | 9-2 | Owner's Manual | CRD4015 | CRD4017 |
| * | 9-3 | Card | ARY1048 | Not used |
| * | 9-4 | Caution Card | CRP1324 | Not used |
| | 9-6 | Owner's Manual | Not used | CRD4018 |

| Mark | No. | Description | GM-320T/XU/UC | GM-3200T/XU/CN |
|---|---|---|---|---|
| | 6 | Polyethylene Bag | CEG1181 | CEG1057(Cover) |
| | 7 | Carton | CHG5596 | CHG5599 |
| | 8 | Contain Box | CHL5596 | CHL5599 |
| | 9-2 | Owner's Manual | CRD4015 | CRB2107 |
| * | 9-3 | Card | ARY1048 | Not used |
| * | 9-4 | Caution Card | CRP1324 | Not used |
| * | 9-5 | Warranty Card | Not used | ARY7046 |

**Owner's Manual**

| Part No. | Language |
|---|---|
| CRD4016 | English, French, Spanish |
| CRD4014 | English, Spanish, German, French, Italian, Dutch, Russian |
| CRD4017 | English, Spanish |
| CRD4018 | Arabic, Portuguese(B) |
| CRB2107 | Traditional Chinese |

# EXTERIOR(Page 8)

## EXTERIOR SECTION PARTS LIST

| Mark | No. | Description | GM-320T/XU/UC | GM-3200T/XU/UC<br>GM-3200T/XU/ES<br>GM-3200T/XU/CN |
|---|---|---|---|---|
| | 6 | Panel | CNB3203 | CNB3313 |
| | 8 | Heat Sink | CNR1830 | CNR1831 |
| | 11 | Amp Unit | CWH1290 | CWH1326 |
| | 26 | Screw | BMZ40P200FTB | Not used |
| * | 27 | Seal | CAN3984 | Not used |
| | 28 | Holder | CNV8522 | Not used |
| | 29 | Nut | NB40FTB | Not used |
| | 30 | Washer | WB40FTB | Not used |

| Mark | No. | Description | GM-320T/XU/UC | GM-3200T/XU/EW |
|---|---|---|---|---|
| | 6 | Panel | CNB3203 | CNB3313 |
| | 8 | Heat Sink | CNR1830 | CNR1807 |
| | 11 | Amp Unit | CWH1290 | CWH1288 |
| | 26 | Screw | BMZ40P200FTB | Not used |
| * | 27 | Seal | CAN3984 | Not used |
| | 28 | Holder | CNV8522 | Not used |
| | 29 | Nut | NB40FTB | Not used |
| | 30 | Washer | WB40FTB | Not used |

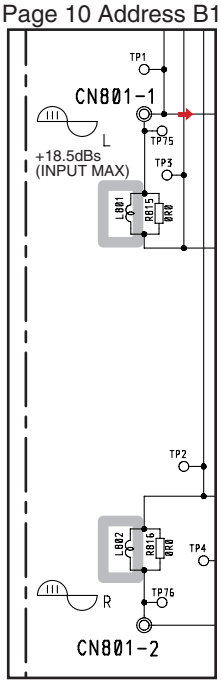
# ELECTRICAL PARTS LIST(Page 16)

**AMP UNIT**

| Circuit Symbol and No. | Part Name | GM-320T/XU/UC | GM-3200T/XU/UC<br>GM-3200T/XU/ES<br>GM-3200T/XU/CN |
|---|---|---|---|
| R101 | | RS1/16S222J | RS1/16S153J |
| R102 | | RS1/16S222J | RS1/16S153J |
| R103 | | RS1/16S560J | RS1/16S331J |
| R104 | | RS1/16S560J | RS1/16S331J |

| Circuit Symbol and No. | Part Name | GM-320T/XU/UC | GM-3200T/XU/EW |
|---|---|---|---|
| L801 | Chip Coil | Not used | LCTAW470J2520 |
| L802 | Chip Coil | Not used | LCTAW470J2520 |
| R101 | | RS1/16S222J | RS1/16S153J |
| R102 | | RS1/16S222J | RS1/16S153J |
| R103 | | RS1/16S560J | RS1/16S331J |
| R104 | | RS1/16S560J | RS1/16S331J |
| R815 | | RS1/16S0R0J | Not used |
| R816 | | RS1/16S0R0J | Not used |
| C652 | | CFTNA103J50 | Not used |
| C805 | | CKSRYB223K50 | CKSRYB472K50 |
| C806 | | CKSRYB223K50 | CKSRYB472K50 |

Page 10 Address B1



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# Service Manual

GM-320T/XU/UC

ORDER NO.
**CRT3518**

## BRIDGEABLE TWO-CHANNEL POWER AMPLIFIER

# GM-320T /XU/UC

For details, refer to "Important Check Points for Good Servicing".

**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
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ⓒ**PIONEER CORPORATION 2005**

K-ZZA. AUG. 2005 Printed in Japan

# SAFETY INFORMATION

## CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

## WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

### ● Service Precaution

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

## [Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

### 1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

### 2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

### 3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

### 4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

### 5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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# 1. SPECIFICATIONS

| | |
|---|---|
| Power source | 14.4 V DC (10.8 — 15.1 V allowable) |
| Grounding system | Negative type |
| Current consumption | 15.0 A (at continuous power, 4 Ω) |
| **Backup current** | **3 mA or less** |
| Average current drawn* | 4.0 A (4 Ω for two channels) |
| | 7.8 A (4 Ω for one channel) |
| Fuse | 25 A × 1 |
| Dimensions | 300 (W) × 61 (H) × 195 (D) mm |
| | [12 (W) × 2-3/8 (H) × 7-5/8 (D) in.] |
| Weight | 2.7 kg (6.0 lbs.) (Leads for wiring not included) |
| Maximum power output | 120 W × 2 ( 4 Ω) / 300 W × 1 ( 4 Ω) |
| Continuous power output | 60 W × 2 (at 14.4 V, 4 Ω, 20 Hz — 20 kHz 0.08% THD) |
| | 150 W × 1 (at 14.4 V, 4 Ω, 20 Hz — 20 kHz 0.8% THD) |
| | 75 W × 2 (at 14.4 V, 2 Ω, 20 Hz — 20 kHz 0.8% THD) |
| Load impedance | 4 Ω (2 — 8 Ω allowable) |
| | (Bridge connection: 4 — 8 Ω allowable) |
| Frequency response | 10 Hz — 50 kHz (+0 dB, –1 dB) |
| Signal-to-noise ratio | 100 dB (IHF-A network) |
| Distortion | 0.008 % (10 W, 1 kHz) |
| Separation | 70 dB (1 kHz) |
| Low pass filter | Cut off frequency: 80 Hz |
| | Cut off slope: –12 dB/oct |
| Gain control | RCA: 200 mV — 6.5 V |
| | Speaker: 0.8 — 26 V |
| Maximum input level / impedance | RCA: 6.5 V / 22 kΩ |
| | Speaker: 26 V / 40 kΩ |

| | |
|---|---|
| Power output | 60 W RMS × 2 channels |
| | (4 Ω and ≦1 % THD+N) |
| | 150 W RMS × 1 channel |
| | (4 Ω and ≦1 % THD+N) |
| | 75 W RMS × 2 channels |
| | (2 Ω and ≦1 % THD+N) |
| Signal-to-noise ratio | 80 dBA (Reference: 1 W into 4 Ω) |

**Note:**

- Specifications and the design are subject to possible modification without notice due to improvements.

***Average current drawn**

- The average current drawn is nearly the maximum current drawn by this unit when an audio signal is input. Use this value when working out total current drawn by multiple power amplifiers.

# 2. EXPLODED VIEWS AND PARTS LIST

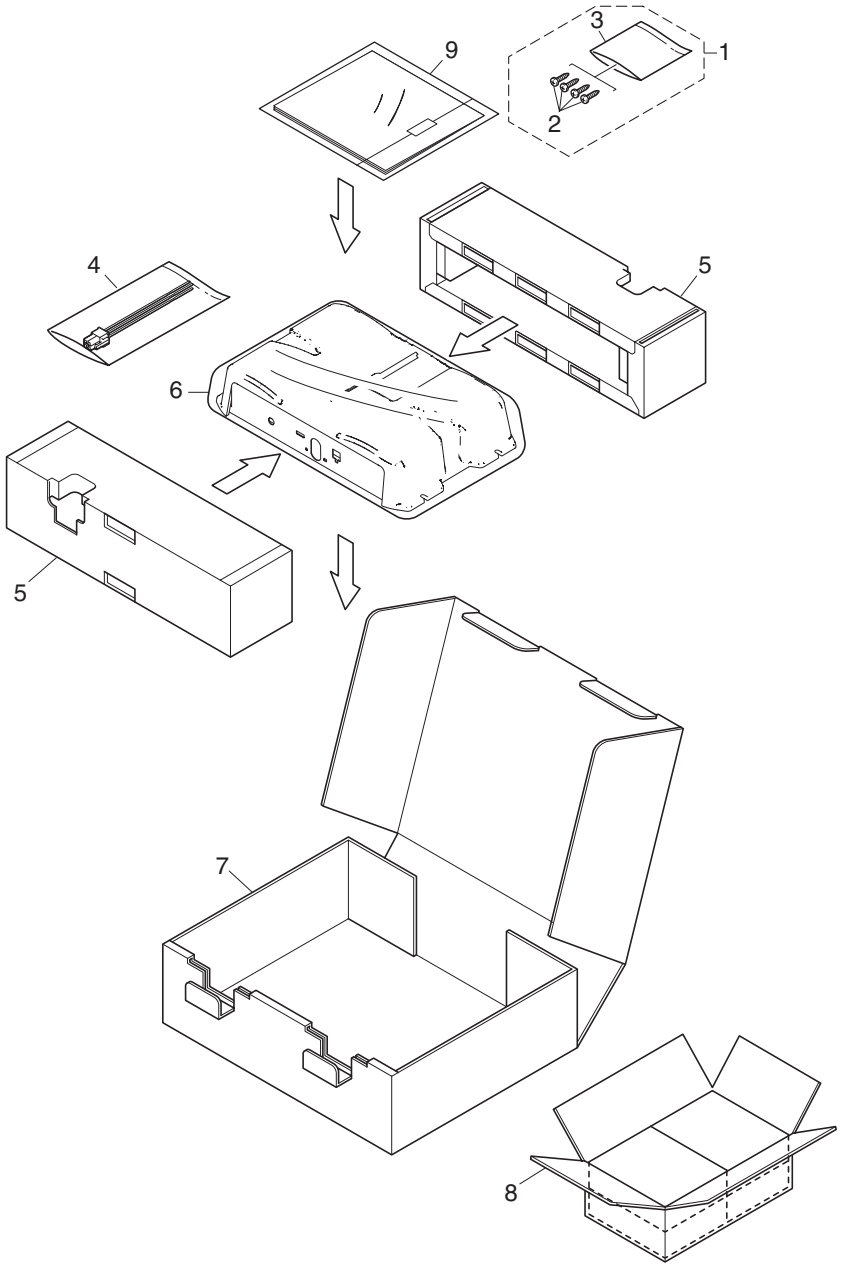
*NOTES : • Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*

*• The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

*• Screw adjacent to▽mark on the product are used for disassembly.*

*• For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions,apply as you think it appropriate.)*

## 2.1 PACKING



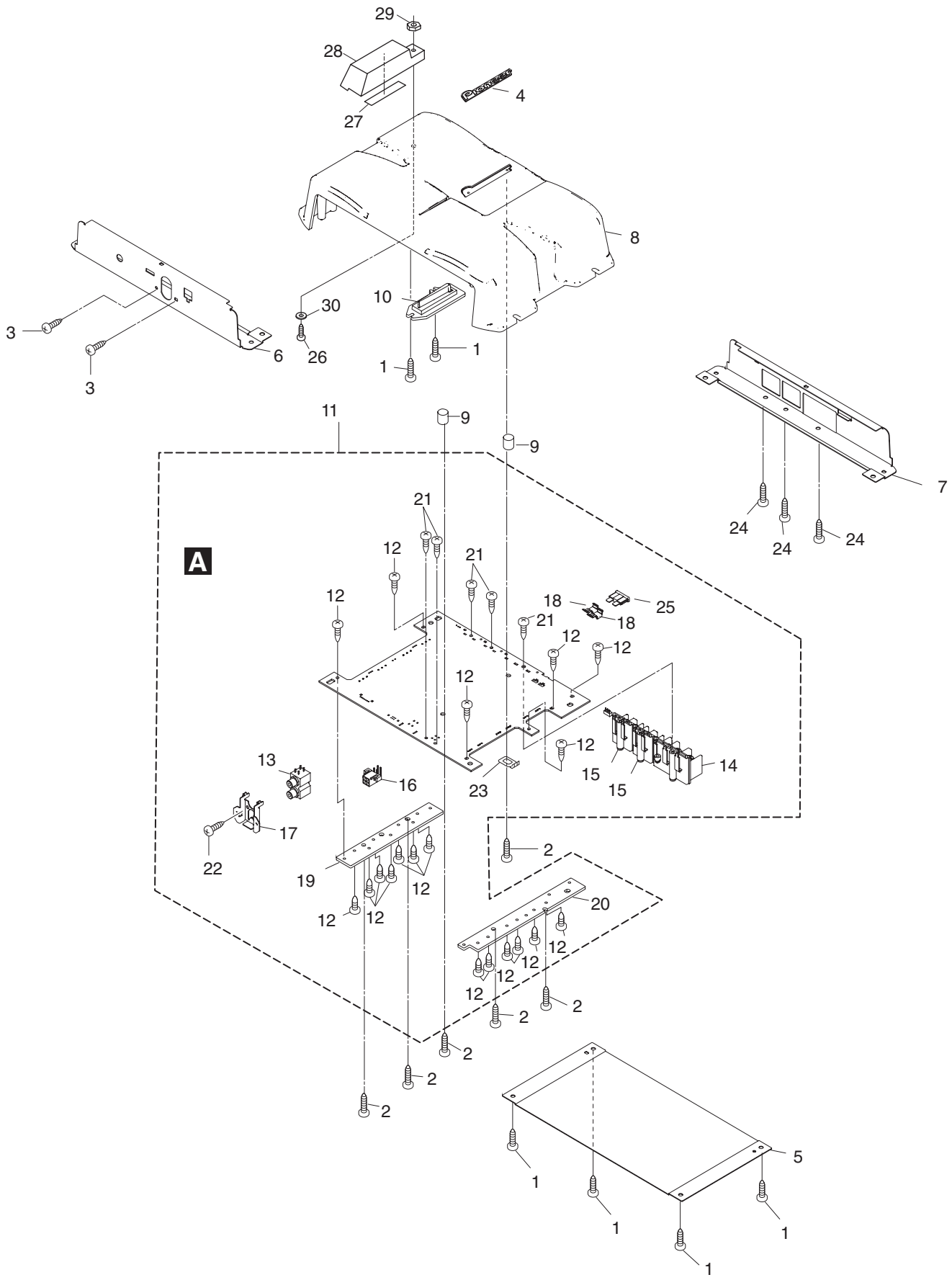
## PACKING SECTION PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Screw Assy | CEA5330 |
| | 2 | Screw | BYC40P180FTB |
| * | 3 | Polyethylene Sheet | CNM4338 |
| | 4 | Cord Assy | CDE7736 |
| | 5 | Protector | CHP3066 |
| | 6 | Polyethylene Bag | CEG1181 |
| | 7 | Carton | CHG5596 |
| | 8 | Contain Box | CHL5596 |
| | 9-1 | Polyethylene Bag | CEG1116 |
| | 9-2 | Owner's Manual | CRD4015 |
| * | 9-3 | Card | ARY1048 |
| * | 9-4 | Caution Card | CRP1324 |

### Owner's Manual

| Part No. | Language |
|---|---|
| CRD4015 | English, French, Spanish |

## 2.2 EXTERIOR


A
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## EXTERIOR SECTION PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Screw(M3x8) | CBA2011 |
| | 2 | Screw(M3x12) | CBA2012 |
| | 3 | Screw | BSZ30P050FTB |
| * | 4 | Badge | CAH1946 |
| | 5 | Case | CNB3200 |
| | 6 | Panel | CNB3203 |
| | 7 | Panel | CNB3207 |
| | 8 | Heat Sink | CNR1830 |
| | 9 | Spacer | CNV8256 |
| | 10 | Lighting Conductor | CNV8692 |
| | 11 | Amp Unit | CWH1290 |
| | 12 | Screw(M3x8) | CBA2011 |
| | 13 | Pin Jack(CN801) | CKB1068 |
| | 14 | Terminal(CN901) | CKE1055 |
| | 15 | Terminal(CN905,906) | CKE1057 |
| | 16 | Socket(CN904) | CKM1463 |
| | 17 | Holder | CND2456 |
| | 18 | Terminal | CND2458 |
| | 19 | Sub Heat Sink | CNR1812 |
| | 20 | Sub Heat Sink | CNR1813 |
| | 21 | Screw | PPZ30P100FSN |
| | 22 | Screw | PPZ30P100FTB |
| | 23 | Terminal(CN903) | VNF1084 |
| | 24 | Screw | PPZ30P100FTB |
| ⚠ | 25 | Fuse(FU101)(25A) | CEK1329 |
| | 26 | Screw | BMZ40P200FTB |
| * | 27 | Seal | CAN3984 |
| | 28 | Holder | CNV8522 |
| | 29 | Nut | NB40FTB |
| | 30 | Washer | WB40FTB |

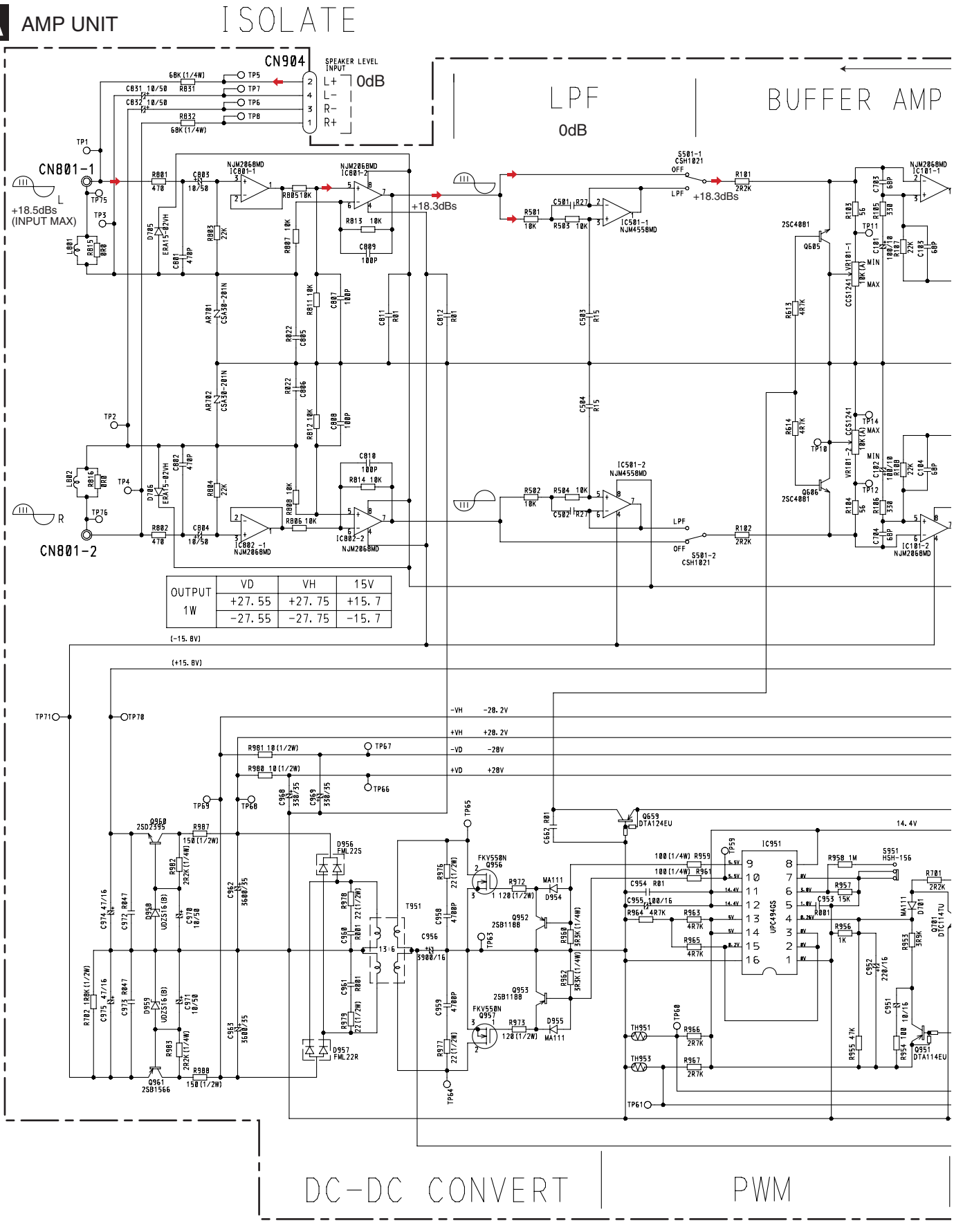
A B C D E F

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

## 3.1 SCHEMATIC DIAGRAM

**Note: When ordering service parts, be sure to refer to " EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".**

**A** AMP UNIT

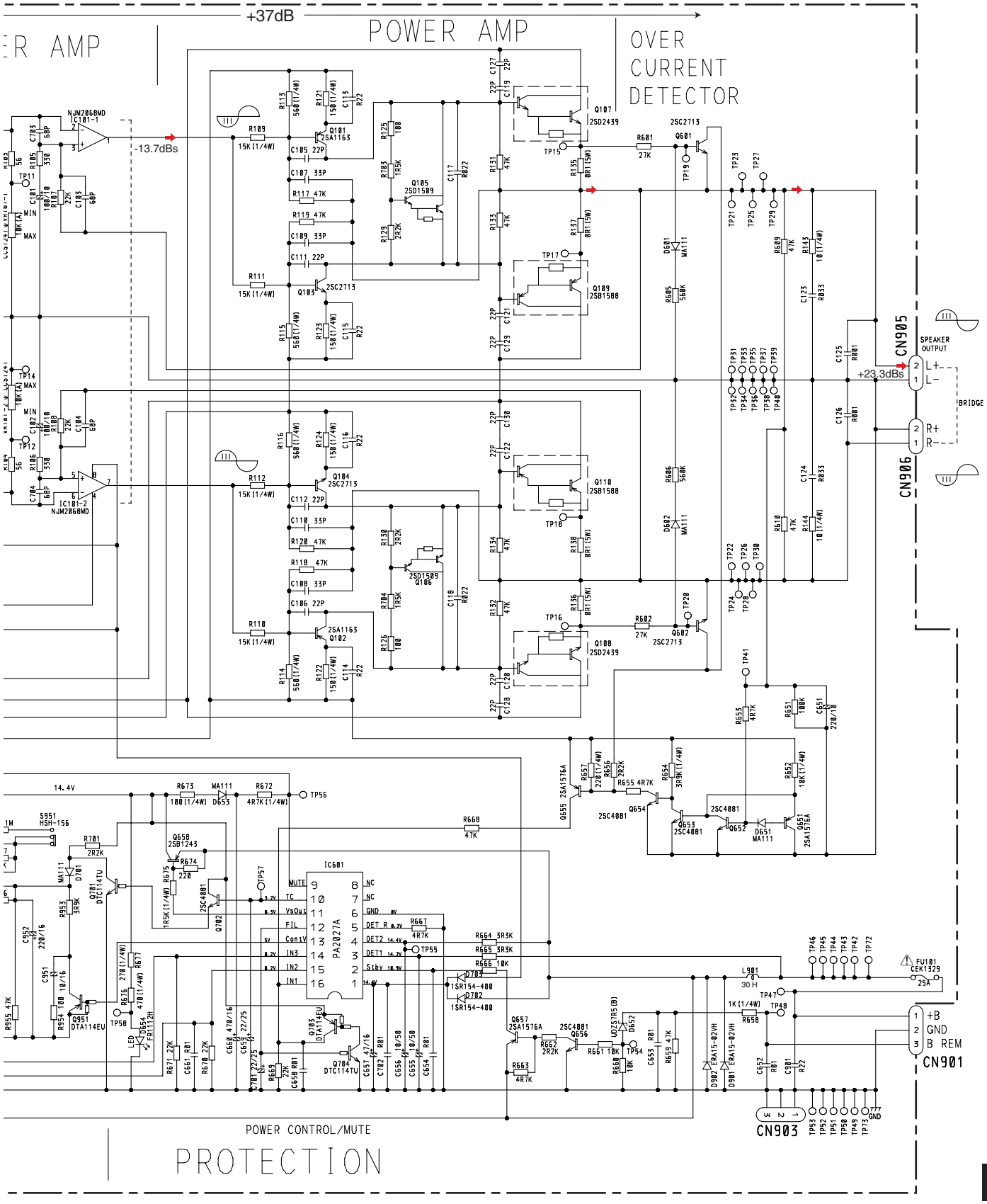


NOTE :

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022

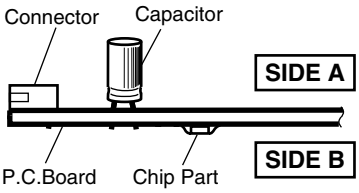
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.



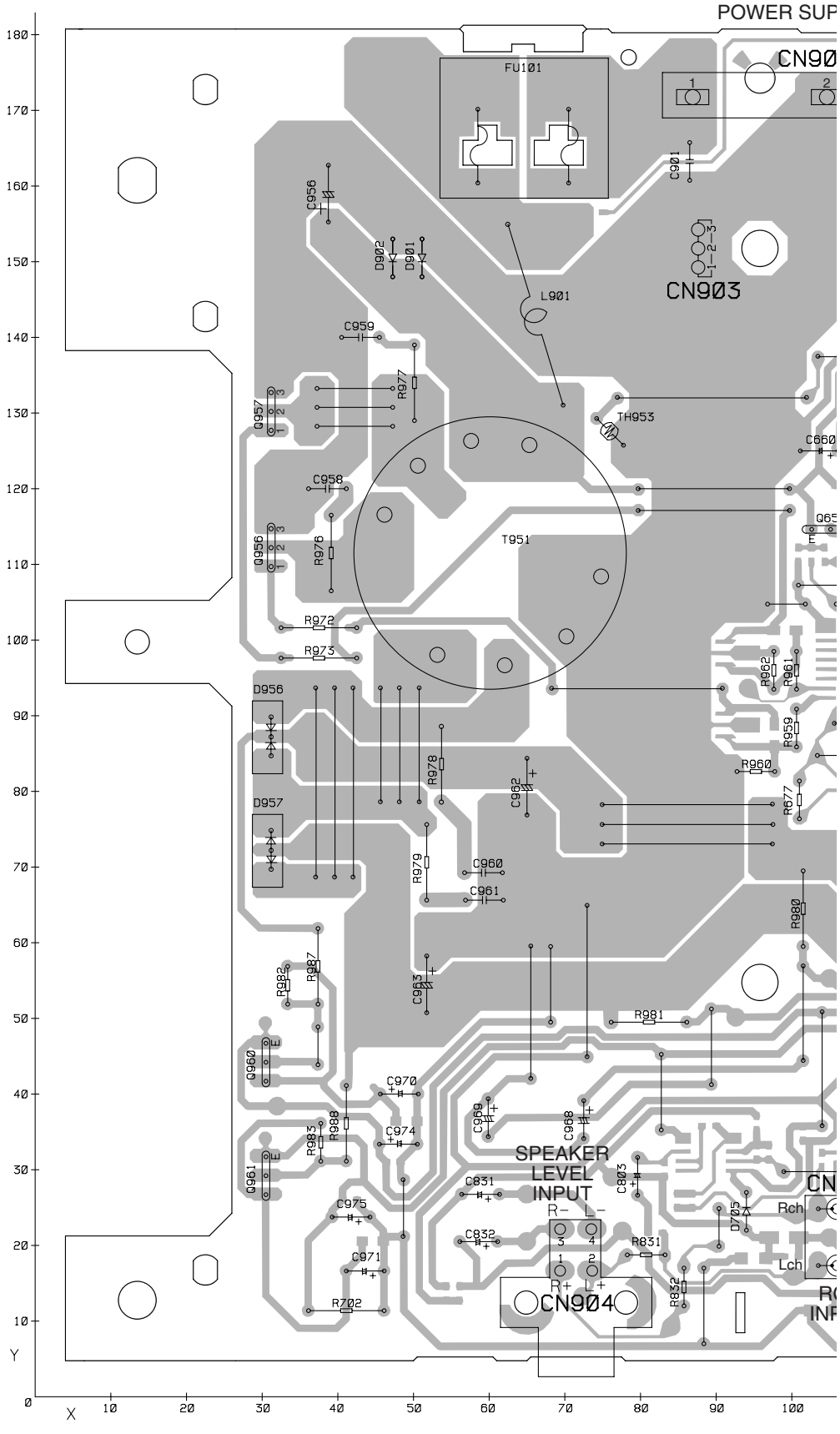
# 4. PCB CONNECTION DIAGRAM
## 4.1 AMP UNIT

**NOTE FOR PCB DIAGRAMS**

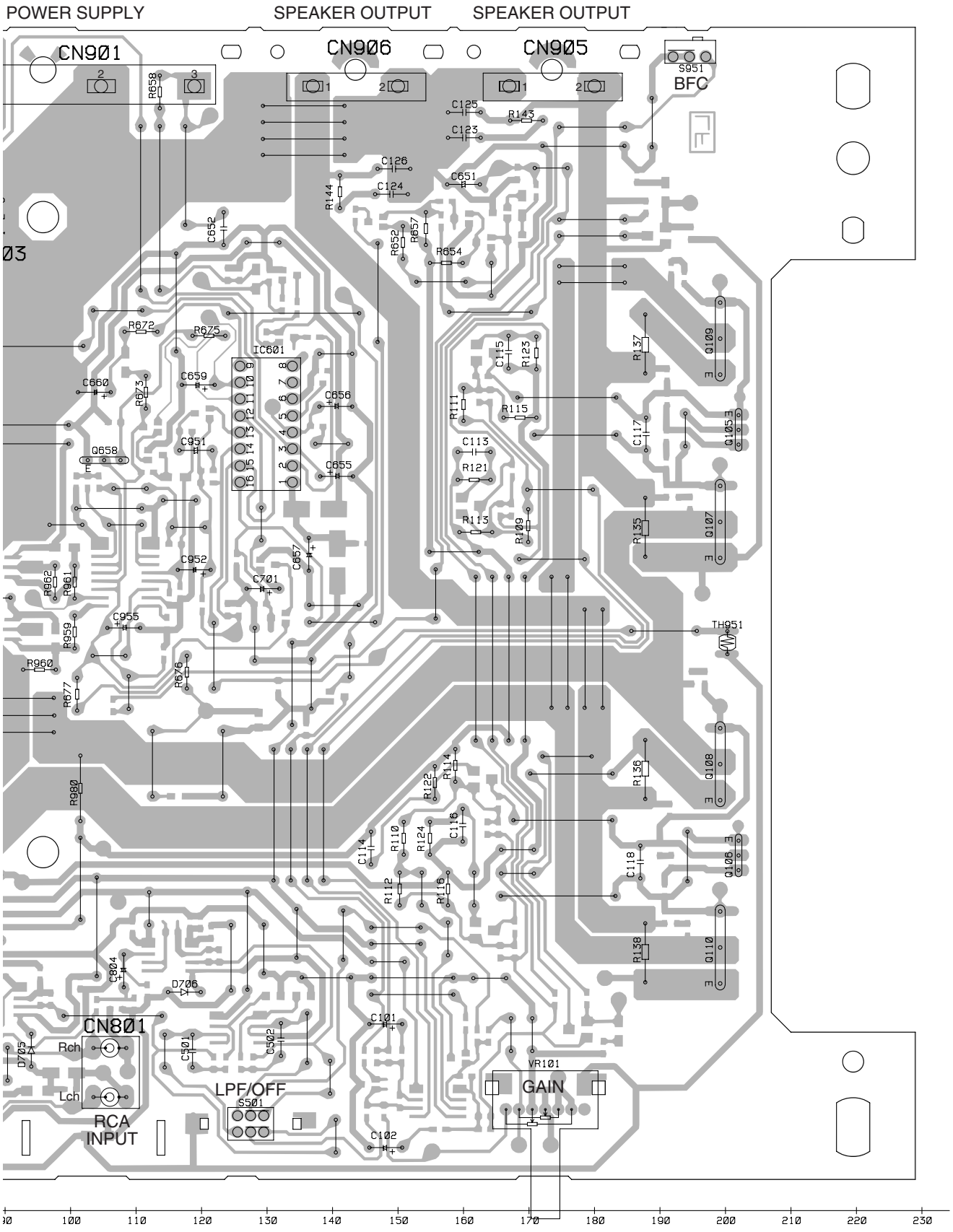
1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams




**A** AMP UNIT



SIDE A


POWER SUPPLY
SPEAKER OUTPUT
SPEAKER OUTPUT
CN901
CN906
CN905
S951
BFC
CN801
Rch
Lch
RCA
INPUT
LPF/OFF
S501
GAIN
VR101
IC601
Q658
THQ51
D706
D705
C804
C501
C502
C101
C102
R658
R672
R675
R673
C660
C659
C656
C655
C951
C952
C957
C701
R962
R961
C955
R959
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R677
R676
R980
C125
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R143
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C124
R144
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R657
R654
C115
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R137
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Q105
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R121
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R109
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Q107
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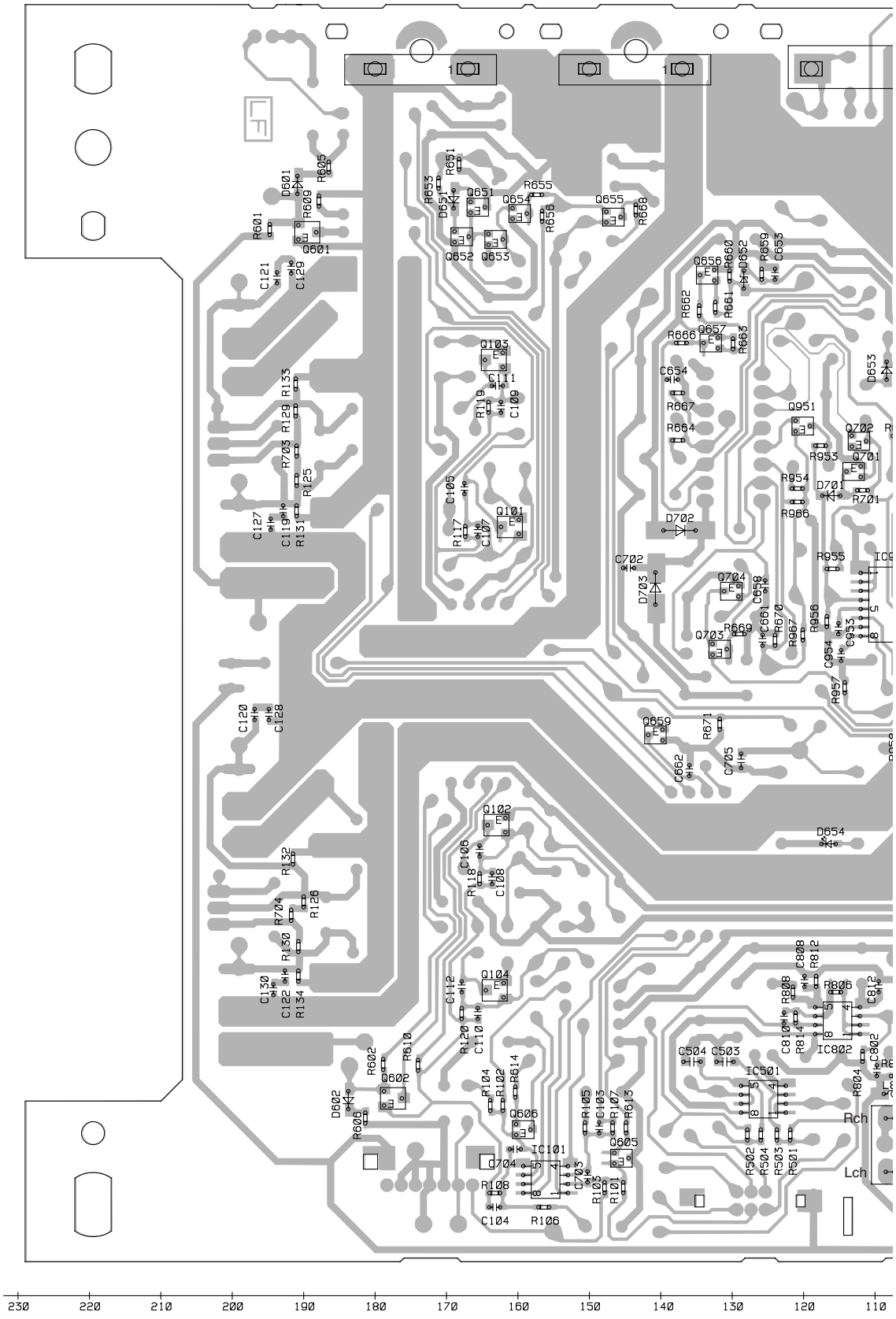
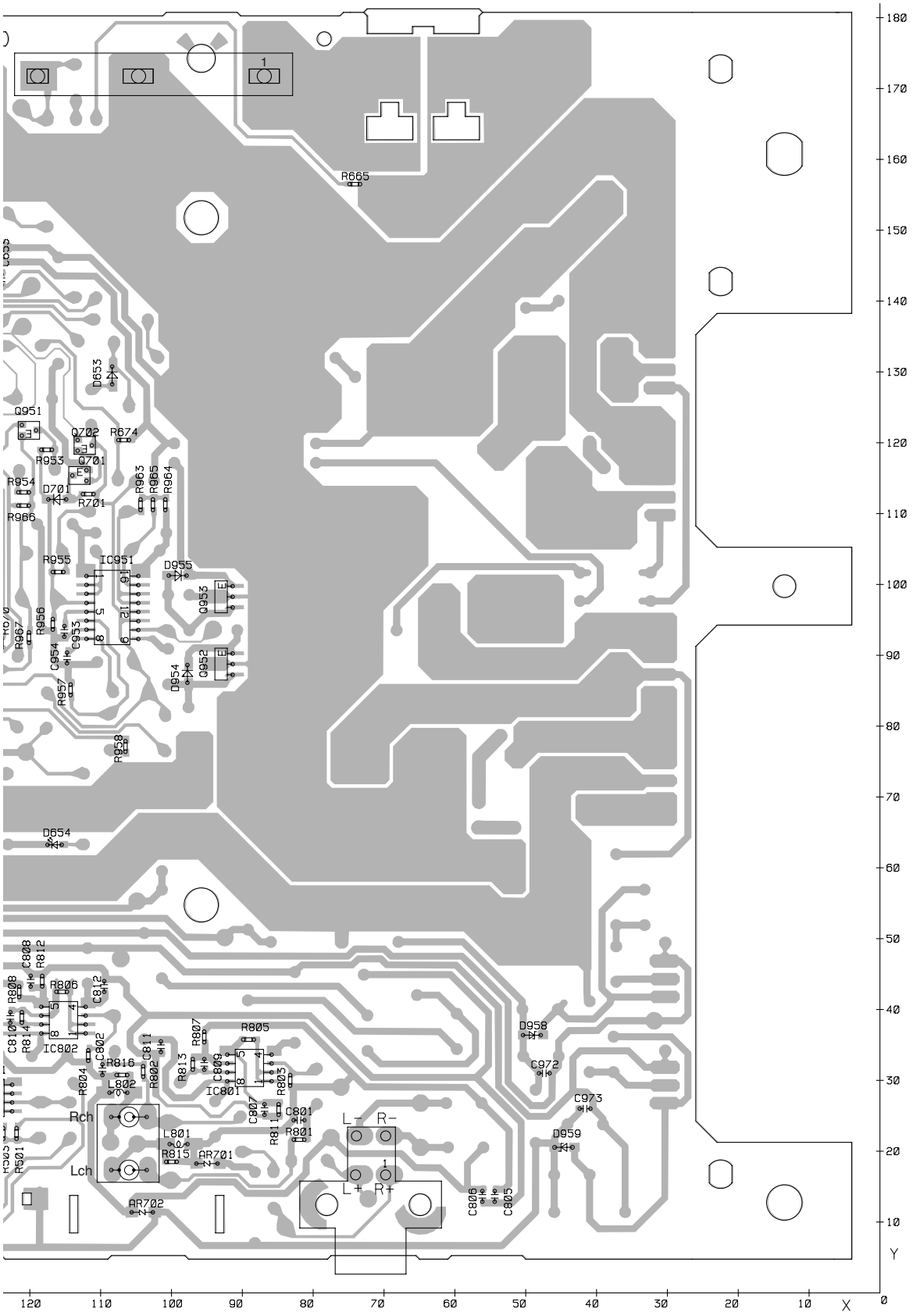
R114
R136
Q108
C116
C114
R110
R124
C118
Q106
R112
R116
R138
Q110
100
110
120
130
140
150
160
170
180
190
200
210
220
230

## A AMP UNIT



**SIDE B**


R665
D653
Q951
QZ02
R674
R953
Q701
R954
D701
R701
R963
R965
R964
R966
R955
IC951
D955
Q953
R967
R956
C954
C953
Q952
D954
R957
R958
D654
C808
R812
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R806
C812
C810
R814
IC802
C802
C811
R807
R805
R816
R802
R813
C809
IC801
R803
C807
R811
C801
R801
D958
C972
C973
D959
Rch
Lch
L801
R815
AR701
AR702
L- R-
L+ R+
C806
C805
R501
C503
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Y
120
110
100
90
80
70
60
50
40
30
20
10
X



5 6 7 8

# 5. ELECTRICAL PARTS LIST

*NOTE:*

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

  *Chip Resistor*

  *RS1/◯S◯◯◯J,RS1/◯◯S◯◯◯J*

  *Chip Capacitor (except for CQS.....)*

  *CKS....., CCS....., CSZS.....*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Meaning of the figures and others in the parentheses in the parts list.*

  *Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.*

  *IC 301 (A, 91, 111) IC NJM2068V*

**A**

**Unit Number : CWH1290**

**Unit Name : Amp Unit**

**MISCELLANEOUS**

| Circuit Symbol and No. | | Part No. |
|---|---|---|
| IC 101 | (B,156,16) IC | NJM2068MD |
| IC 501 | (B,126,28) IC | NJM4558MD |
| IC 601 | (A,134,111) IC | PA2027A |
| IC 801 | (B,89,32) IC | NJM2068MD |
| IC 802 | (B,115,39) IC | NJM2068MD |
| IC 951 | (B,108,97) IC | UPC494GS |
| Q 101 | (B,161,108) Transistor | 2SA1163 |
| Q 102 | (B,163,66) Transistor | 2SA1163 |
| Q 103 | (B,163,131) Transistor | 2SC2713 |
| Q 104 | (B,163,43) Transistor | 2SC2713 |
| Q 105 | (A,202,119) Transistor | 2SD1509 |
| Q 106 | (A,202,54) Transistor | 2SD1509 |
| Q 107 | (A,199,111) Transistor | 2SD2439 |
| Q 108 | (A,199,74) Transistor | 2SD2439 |
| Q 109 | (A,199,139) Transistor | 2SB1588 |
| Q 110 | (A,199,46) Transistor | 2SB1588 |
| Q 601 | (B,190,149) Transistor | 2SC2713 |
| Q 602 | (B,178,28) Transistor | 2SC2713 |
| Q 605 | (B,146,19) Transistor | 2SC4081 |
| Q 606 | (B,159,23) Transistor | 2SC4081 |
| Q 651 | (B,166,152) Transistor | 2SA1576A |
| Q 652 | (B,168,148) Transistor | 2SC4081 |
| Q 653 | (B,163,148) Transistor | 2SC4081 |
| Q 654 | (B,160,152) Transistor | 2SC4081 |
| Q 655 | (B,147,151) Transistor | 2SA1576A |
| Q 656 | (B,134,143) Transistor | 2SC4081 |
| Q 657 | (B,133,133) Transistor | 2SA1576A |
| Q 658 | (A,103,115) Transistor | 2SB1243 |
| Q 659 | (B,141,79) Transistor | DTA124EU |
| Q 701 | (B,113,115) Transistor | DTC114TU |
| Q 702 | (B,112,120) Transistor | 2SC4081 |
| Q 703 | (B,132,91) Transistor | DTA114EU |
| Q 704 | (B,130,99) Transistor | DTC114TU |
| Q 951 | (B,120,122) Transistor | DTA114EU |
| Q 952 | (B,93,89) Transistor | 2SB1188 |
| Q 953 | (B,93,98) Transistor | 2SB1188 |
| Q 956 | (A,31,110) Transistor | FKV550N |
| Q 957 | (A,31,128) Transistor | FKV550N |
| Q 960 | (A,31,42) Transistor | 2SD2395 |
| Q 961 | (A,31,27) Transistor | 2SB1566 |
| D 601 | (B,191,156) Diode | MA111 |
| D 602 | (B,184,27) Diode | MA111 |
| D 651 | (B,169,154) Diode | MA111 |
| D 652 | (B,128,142) Diode | UDZS7R5(B) |
| D 653 | (B,108,130) Diode | MA111 |
| D 654 | (B,117,63) LED | FR1112H |
| D 701 | (B,116,112) Diode | MA111 |
| D 702 | (B,137,107) Diode | 1SR154-400 |
| D 703 | (B,141,99) Diode | 1SR154-400 |
| D 705 | (A,94,22) Diode | ERA15-02VH |
| D 706 | (A,115,33) Diode | ERA15-02VH |
| D 901 | (A,51,153) Diode | ERA15-02VH |
| D 902 | (A,47,153) Diode | ERA15-02VH |
| D 954 | (B,98,87) Diode | MA111 |
| D 955 | (B,99,101) Diode | MA111 |
| D 956 | (A,31,85) Diode | FML22S |
| D 957 | (A,31,70) Diode | FML22R |
| D 958 | (B,49,36) Diode | UDZS16(B) |
| D 959 | (B,45,21) Diode | UDZS16(B) |
| L 901 | (A,66,143) Choke Coil 30µH | CTH1324 |
| T 951 | (A,60,112) Transformer | CTT1124 |
| TH951 | (A,200,85) Thermistor | CCX1013 |
| TH953 | (A,78,126) Thermistor | CCX1064 |
| S 501 | (A,126,12) Switch(LPF/OFF) | CSH1021 |
| S 951 | (A,197,176) Switch(BFC) | HSH-156 |
| VR101 | (A,167,15) Volume 10kΩ(A)(GAIN) | CCS1241 |
| ⚠FU101 | (A,65,165) Fuse 25A | CEK1329 |
| AR701 | (B,95,18) Surge Protector | CSA30-201N |
| AR702 | (B,104,11) Surge Protector | CSA30-201N |

**RESISTORS**

| | | |
|---|---|---|
| R 101 | (B,145,15) | RS1/16S222J |
| R 102 | (B,162,27) | RS1/16S222J |
| R 103 | (B,148,15) | RS1/16S560J |

| Circuit Symbol and No. | | Part No. |
|---|---|---|
| R 104 | (B,164,27) | RS1/16S560J |
| R 105 | (B,151,24) | RS1/16S331J |
| R 106 | (B,156,12) | RS1/16S331J |
| R 107 | (B,147,24) | RS1/16S223J |
| R 108 | (B,163,14) | RS1/16S223J |
| R 109 | (A,170,107) | RD1/4PU153J |
| R 110 | (A,151,54) | RD1/4PU153J |
| R 111 | (A,160,121) | RD1/4PU153J |
| R 112 | (A,150,52) | RD1/4PU153J |
| R 113 | (A,164,104) | RD1/4PU561J |
| R 114 | (A,159,66) | RD1/4PU561J |
| R 115 | (A,171,121) | RD1/4PU561J |
| R 116 | (A,158,52) | RD1/4PU561J |
| R 117 | (B,167,107) | RS1/16S473J |
| R 118 | (B,165,58) | RS1/16S473J |
| R 119 | (B,164,124) | RS1/16S473J |
| R 120 | (B,168,40) | RS1/16S473J |
| R 121 | (A,164,112) | RD1/4PU151J |
| R 122 | (A,156,63) | RD1/4PU151J |
| R 123 | (A,171,129) | RD1/4PU151J |
| R 124 | (A,155,54) | RD1/4PU151J |
| R 125 | (B,191,114) | RS1/16S101J |
| R 126 | (B,190,55) | RS1/16S101J |
| R 129 | (B,191,124) | RS1/16S222J |
| R 130 | (B,191,49) | RS1/16S222J |
| R 131 | (B,191,110) | RS1/16S473J |
| R 132 | (B,192,61) | RS1/16S473J |
| R 133 | (B,191,128) | RS1/16S473J |
| R 134 | (B,191,45) | RS1/16S473J |
| R 135 | (A,188,109) 0.1Ω | CCN1155 |
| R 136 | (A,188,63) 0.1Ω | CCN1155 |
| R 137 | (A,188,137) 0.1Ω | CCN1155 |
| R 138 | (A,188,35) 0.1Ω | CCN1155 |
| R 143 | (A,172,167) | RD1/4PU100J |
| R 144 | (A,141,153) | RD1/4PU100J |
| R 501 | (B,122,23) | RS1/16S103J |
| R 502 | (B,128,23) | RS1/16S103J |
| R 503 | (B,124,23) | RS1/16S103J |
| R 504 | (B,126,23) | RS1/16S103J |
| R 601 | (B,195,149) | RS1/16S273J |
| R 602 | (B,179,32) | RS1/16S273J |
| R 605 | (B,187,158) | RS1/16S564J |
| R 606 | (B,181,25) | RS1/16S564J |
| R 609 | (B,188,153) | RS1/16S473J |
| R 610 | (B,174,32) | RS1/16S473J |
| R 613 | (B,145,24) | RS1/16S472J |
| R 614 | (B,160,29) | RS1/16S472J |
| R 651 | (B,168,158) | RS1/16S104J |
| R 652 | (A,151,145) | RD1/4PU103J |
| R 653 | (B,171,156) | RS1/16S472J |
| R 654 | (A,160,145) | RD1/4PU392J |
| R 655 | (B,157,154) | RS1/16S472J |
| R 656 | (B,157,151) | RS1/16S222J |
| R 657 | (A,154,153) | RD1/4PU221J |
| R 658 | (A,114,168) | RD1/4PU102J |
| R 659 | (B,126,143) | RS1/16S473J |
| R 660 | (B,130,143) | RS1/16S103J |
| R 661 | (B,132,138) | RS1/16S103J |
| R 662 | (B,135,138) | RS1/16S222J |
| R 663 | (B,130,133) | RS1/16S472J |

| Circuit Symbol and No. | | Part No. |
|---|---|---|
| R 664 | (B,138,120) | RS1/16S332J |
| R 665 | (B,74,157) | RS1/16S332J |
| R 666 | (B,137,133) | RS1/16S103J |
| R 667 | (B,138,126) | RS1/16S472J |
| R 668 | (B,144,152) | RS1/16S473J |
| R 669 | (B,129,93) | RS1/16S223J |
| R 670 | (B,124,92) | RS1/16S223J |
| R 671 | (B,132,80) | RS1/16S223J |
| R 672 | (A,108,134) | RD1/4PU472J |
| R 673 | (A,112,123) | RD1/4PU101J |
| R 674 | (B,107,120) | RS1/16S221J |
| R 675 | (A,124,134) | RD1/4PU152J |
| R 676 | (A,118,80) | RD1/4PU471J |
| R 677 | (A,101,76) | RD1/4PU271J |
| R 701 | (B,112,113) | RS1/16S222J |
| R 702 | (A,36,11) | RD1/2PM182J |
| R 703 | (B,191,118) | RS1/16S152J |
| R 704 | (B,192,53) | RS1/16S152J |
| R 801 | (B,82,22) | RS1/16S471J |
| R 802 | (B,104,31) | RS1/16S471J |
| R 803 | (B,83,30) | RS1/16S223J |
| R 804 | (B,112,34) | RS1/16S223J |
| R 805 | (B,89,36) 10kΩ | CCN1152 |
| R 806 | (B,116,43) 10kΩ | CCN1152 |
| R 807 | (B,95,36) 10kΩ | CCN1152 |
| R 808 | (B,122,43) 10kΩ | CCN1152 |
| R 811 | (B,85,26) 10kΩ | CCN1152 |
| R 812 | (B,118,44) 10kΩ | CCN1152 |
| R 813 | (B,97,32) 10kΩ | CCN1152 |
| R 814 | (B,121,39) 10kΩ | CCN1152 |
| R 815 | (B,100,19) | RS1/16S0R0J |
| R 816 | (B,107,31) | RS1/16S0R0J |
| R 831 | (A,83,19) | RD1/4PU683J |
| R 832 | (A,86,17) | RD1/4PU683J |
| R 953 | (B,118,119) | RS1/16S392J |
| R 954 | (B,121,113) | RS1/16S101J |
| R 955 | (B,116,102) | RS1/16S473J |
| R 956 | (B,117,94) | RS1/16S102J |
| R 957 | (B,114,85) | RS1/16S153J |
| R 958 | (B,107,77) | RS1/16S105J |
| R 959 | (A,101,86) | RD1/4PU101J |
| R 960 | (A,93,83) | RD1/4PU332J |
| R 961 | (A,101,99) | RD1/4PU101J |
| R 962 | (A,98,94) | RD1/4PU332J |
| R 963 | (B,104,111) | RS1/16S472J |
| R 964 | (B,101,111) | RS1/16S472J |
| R 965 | (B,103,111) | RS1/16S472J |
| R 966 | (B,121,111) | RS1/16S272J |
| R 967 | (B,120,93) | RS1/16S272J |
| R 972 | (A,33,102) | RD1/2PM121J |
| R 973 | (A,33,98) | RD1/2PM121J |
| R 976 | (A,39,117) | RD1/2PM220J |
| R 977 | (A,50,129) | RD1/2PM220J |
| R 978 | (A,54,79) | RD1/2PM220J |
| R 979 | (A,52,76) | RD1/2PM220J |
| R 980 | (A,102,70) | RD1/2PM100J |
| R 981 | (A,76,50) | RD1/2PM100J |
| R 982 | (A,33,57) | RD1/4PU222J |
| R 983 | (A,38,31) | RD1/4PU222J |
| R 987 | (A,37,52) | RD1/2PM151J |

| Circuit Symbol and No. | | Part No. |
|---|---|---|
| R 988 | (A,41,31) | RD1/2PM151J |

## CAPACITORS

| Circuit Symbol and No. | | Part No. |
|---|---|---|
| C 101 | (A,151,29) | CEAT101M10 |
| C 102 | (A,151,10) | CEAT101M10 |
| C 103 | (B,149,24) | CCSRCH680J50 |
| C 104 | (B,163,12) | CCSRCH680J50 |
| C 105 | (B,168,113) | CCSRCH220J50 |
| C 106 | (B,165,62) | CCSRCH220J50 |
| C 107 | (B,166,107) | CCSRCH330J50 |
| C 108 | (B,164,58) | CCSRCH330J50 |
| C 109 | (B,162,124) | CCSRCH330J50 |
| C 110 | (B,166,40) | CCSRCH330J50 |
| C 111 | (B,163,127) | CCSRCH220J50 |
| C 112 | (B,168,43) | CCSRCH220J50 |
| C 113 | (A,164,116) | CFTNA224J50 |
| C 114 | (A,146,53) | CFTNA224J50 |
| C 115 | (A,167,129) | CFTNA224J50 |
| C 116 | (A,160,56) | CFTNA224J50 |
| C 117 | (A,188,121) | CFTNA223J50 |
| C 118 | (A,187,51) | CFTNA223J50 |
| C 119 | (B,193,110) | CCSRCH220J50 |
| C 120 | (B,197,81) | CCSRCH220J50 |
| C 121 | (B,194,143) | CCSRCH220J50 |
| C 122 | (B,193,45) | CCSRCH220J50 |
| C 123 | (A,158,164) | CFTNA333J50 |
| C 124 | (A,152,155) | CFTNA333J50 |
| C 125 | (A,158,168) | CQMA102J50 |
| C 126 | (A,147,159) | CQMA102J50 |
| C 127 | (B,195,108) | CCSRCH220J50 |
| C 128 | (B,195,81) | CCSRCH220J50 |
| C 129 | (B,192,144) | CCSRCH220J50 |
| C 130 | (B,194,43) | CCSRCH220J50 |
| C 501 | (A,119,22) | CFTNA274J50 |
| C 502 | (A,132,24) | CFTNA274J50 |
| C 503 | (B,131,33) | CKSQYB154K50 |
| C 504 | (B,136,33) | CKSQYB154K50 |
| C 651 | (A,158,157) | CEANP221M10 |
| C 652 | (A,123,148) | CFTNA103J50 |
| C 653 | (B,124,143) | CKSRYB103K50 |
| C 654 | (B,138,128) | CKSRYB103K50 |
| C 655 | (A,138,112) | CEAT100M50 |
| C 656 | (A,138,123) | CEAT100M50 |
| C 657 | (A,136,103) | CEAT470M16 |
| C 658 | (B,125,99) | CKSRYB103K50 |
| C 659 | (A,122,126) | CEAT220M25 |
| C 660 | (A,106,125) | CEAT471M16 |
| C 661 | (B,126,92) | CKSRYB103K50 |
| C 662 | (B,136,74) | CKSRYB103K50 |
| C 701 | (A,132,95) | CEAT220M25 |
| C 702 | (B,145,102) | CKSRYB103K50 |
| C 703 | (B,150,17) | CCSRCH680J50 |
| C 704 | (B,160,21) | CCSRCH680J50 |
| C 801 | (B,82,24) | CKSRYB471K50 |
| C 802 | (B,110,32) | CKSRYB471K50 |
| C 803 | (A,80,27) | CEAT100M50 |
| C 804 | (A,108,34) | CEAT100M50 |
| C 805 | (B,54,14) | CKSRYB223K50 |
| C 806 | (B,56,14) | CKSRYB223K50 |
| C 807 | (B,87,26) | CCSRCH101J50 |
| C 808 | (B,120,44) | CCSRCH101J50 |
| C 809 | (B,95,32) | CCSRCH101J50 |
| C 810 | (B,123,39) | CCSRCH101J50 |
| C 811 | (B,102,35) | CKSRYB103K50 |
| C 812 | (B,110,43) | CKSRYB103K50 |
| C 831 | (A,61,27) | CEAT100M50 |
| C 832 | (A,61,21) | CEAT100M50 |
| C 901 | (A,87,161) | CFTNA224J50 |
| C 951 | (A,122,116) | CEANP100M16 |
| C 952 | (A,121,98) | CEAT221M16 |
| C 953 | (B,115,93) | CKSRYB102K50 |
| C 954 | (B,115,90) | CKSRYB103K50 |
| C 955 | (A,106,89) | CEAT101M16 |
| C 956 | (A,39,155) 3900µF/16V | CCH1644(P35) |
| C 958 | (A,36,120) | CQMA472J50 |
| C 959 | (A,46,140) | CQMA472J50 |
| C 960 | (A,62,69) | CQMA102J50 |
| C 961 | (A,57,66) | CQMA102J50 |
| C 962 | (A,65,84) 3600µF/35V | CCH1673(P35) |
| C 963 | (A,52,58) 3600µF/35V | CCH1673(P35) |
| C 968 | (A,73,39) | CEAT331M35 |
| C 969 | (A,60,39) | CEAT331M35 |
| C 970 | (A,46,40) | CEAT100M50 |
| C 971 | (A,46,17) | CEAT100M50 |
| C 972 | (B,47,31) | CKSRYB473K50 |
| C 973 | (B,42,26) | CKSRYB473K50 |
| C 974 | (A,46,33) | CEAT470M16 |
| C 975 | (A,44,24) | CEAT470M16 |

# 6. ADJUSTMENT

There is no information to be shown in this chapter.

# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 DISASSEMBLY

● **Removing the Case (Fig.1)**

1 Remove the four screws and then remove the Case.

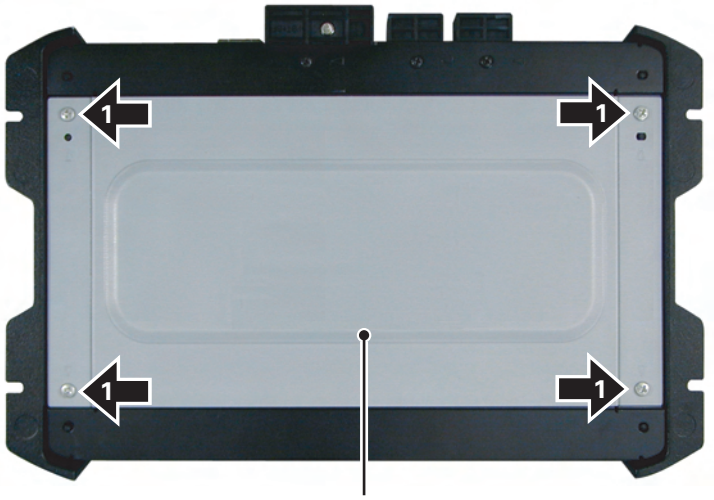



Fig.1

● **Removing the Amp Unit (Fig.2)**

1 Remove the six screws and then remove the Amp Unit.

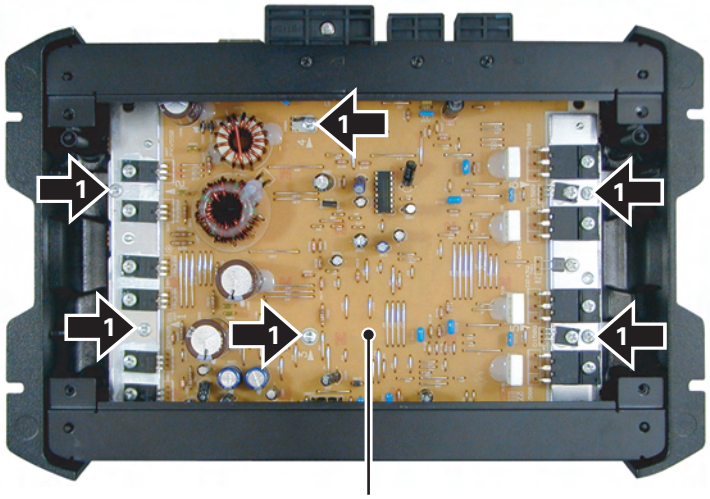
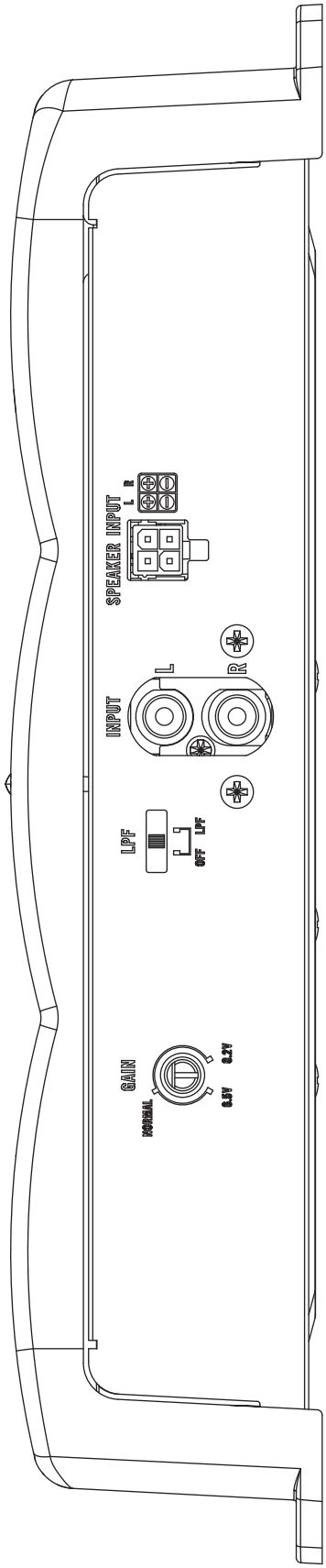
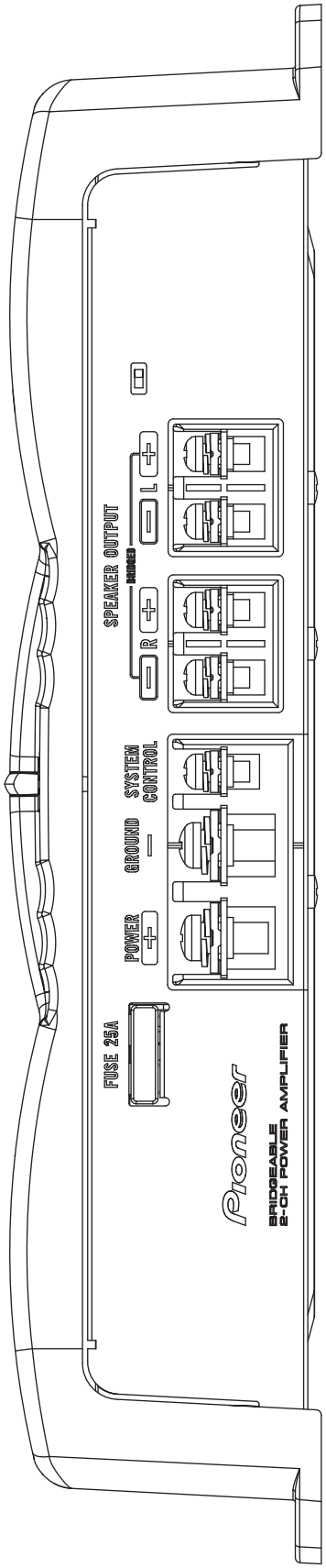



Fig.2

## 7.1.2 CONNECTOR FUNCTION DESCRIPTION



# 8. OPERATIONS

## Power Indicator

The power indicator lights when the power is switched on.

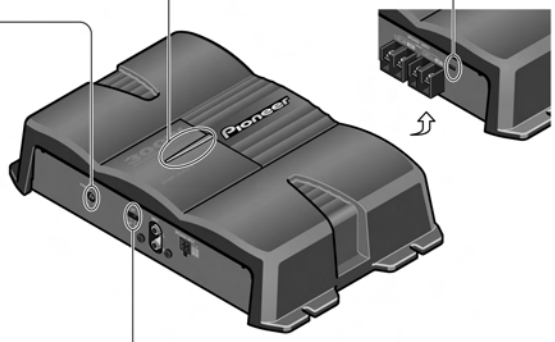
## BFC (Beat Frequency Control) Switch

If you hear a beat while listening to an AM broadcast with your car stereo, change the BFC switch using a small standard tip screwdriver.

## Gain Control

If the sound level is too low, even when the volume of the car stereo used along with this power amplifier is turned up, turn gain control on the front of the power amplifier clockwise. If the sound distorts when the volume is turned up, turn the gain control counter-clockwise.

- When using with an RCA equipped car stereo (standard output of 500 mV), set to the NORMAL position. When using with an RCA equipped Pioneer car stereo with max. output of 4 V or more, adjust level to match the car stereo output level.
- If you hear too much noise when using the speaker input terminals, turn the gain control counter-clockwise.

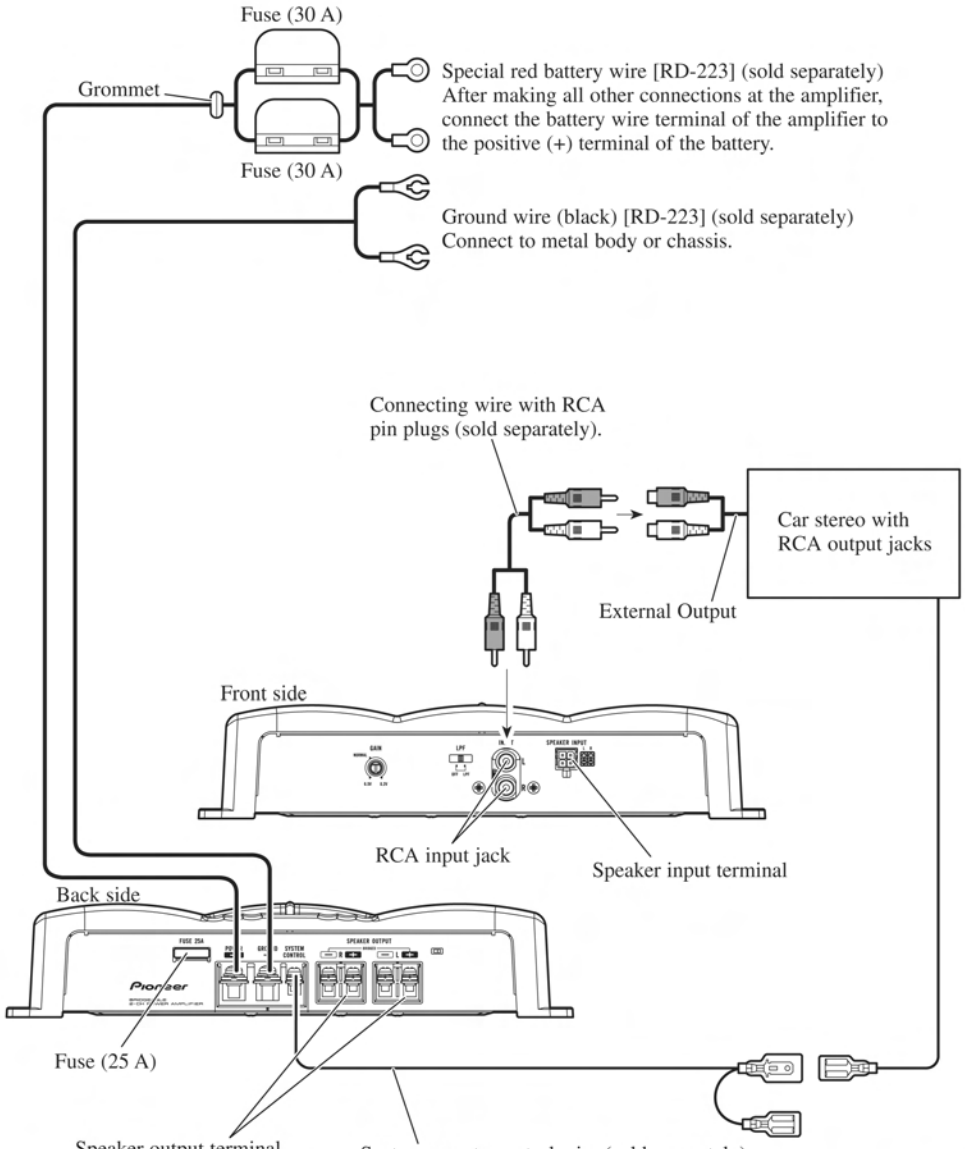



## LPF (Low-Pass Filter) Select Switch

Set the LPF select switch as follows according to the type of speaker that is connected to the speaker output connector and the car stereo system:

| LPF Select Switch | Audio frequency range to be output | Speaker Type | Remarks |
|---|---|---|---|
| LPF (right) | Very Low Frequency range | Subwoofer | Connect a subwoofer. |
| OFF (left) | Full range | Full range | |

## ● CONNECTION DIAGRAM

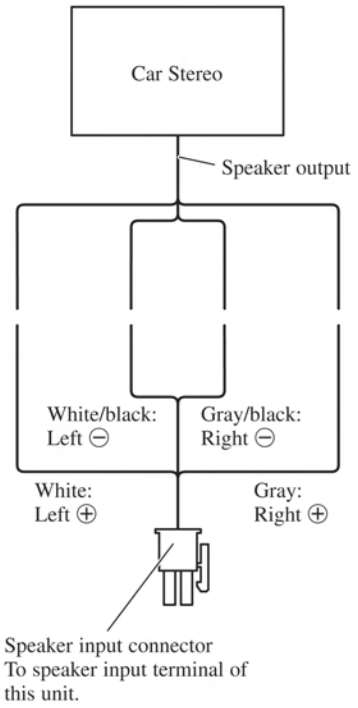

Fuse (30 A)
Grommet
Special red battery wire [RD-223] (sold separately)
After making all other connections at the amplifier, connect the battery wire terminal of the amplifier to the positive (+) terminal of the battery.
Fuse (30 A)
Ground wire (black) [RD-223] (sold separately)
Connect to metal body or chassis.
Connecting wire with RCA pin plugs (sold separately).
Car stereo with RCA output jacks
External Output
Front side
RCA input jack
Speaker input terminal
Back side
Fuse (25 A)
Speaker output terminal
System remote control wire (sold separately)
Connect the male terminal of this wire to the system remote control terminal of the car stereo (SYSTEM REMOTE CONTROL). The female terminal can be connected to the auto-antenna relay control terminal. If the car stereo does not have a system remote control terminal, connect the male terminal to the power terminal through the ignition switch.

## Using the Speaker Input

Connect the car stereo speaker output wires to the amplifier using the supplied speaker input connector.

- Do not connect both the RCA input and the speaker input at the same time.

### ■ Connections when using the speaker input

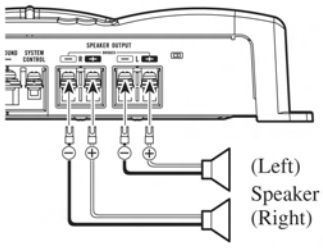



## Connecting the Speaker Wires

The speaker output mode can be two-channel (stereo) or one-channel (mono).
Connect the speaker leads to suit the mode according to the figures shown below.

- Do not connect both the RCA input and the speaker input at the same time.

### Two-channel mode (stereo)




### One-channel mode (mono)